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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 July 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,2,5,8,9,11-15,17,20-23,25 and 27-38</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1,2,5,8-9,11-15,17,20-23,25 and 27-38</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   **Claims 1-2, 5, 9, 11-12, 22-23, 25** and **36-38** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a manufacture or machine), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101").

Claim 1 recites "**a method** comprising:

obtaining a total memory bandwidth ...;

obtaining a plurality of bandwidth request ...;

apportioning at least a portion ...".

The instant claim neither transform underlying subject matter nor recite structure associated with another statutory category, and therefore do not define a statutory process.

Claim 2 and 37-38 are also rejected because they depend from claim 1 and have the same problem.

Claim 5 recites "**a method** comprising:

delaying ...;

appending ...;

using the transmission policy to identify ..." and

using the transmission policy to select ...".

The instant claim neither transform underlying subject matter nor recite structure associated with another statutory category, and therefore do not define a statutory process.

Claim 9 and 11-12 are also rejected because they depend from claim 5 and have the same problem.

Claim 22 and **25** recite "An article of manufacture". However, the article of manufacture (defined in Specification as the computer program product) includes **carrier waves** in Specification ("Some examples of computer program products are CD-ROM disks, ROM cards, floppy disks, magnetic tapes, computer hard drives, servers on a network, **carrier waves**, and flash memory", [0020]), which is non-statutory subject matter.

Claims 23, 25 and 36 are rejected because they depend from claim 22 and 25 and have the same problem.

For examination on the merits, the claims will be interpreted as the best understood.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   **Claims 1-2, 5, 13, 23** and **37-38** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites the limitation "by combining data of at least two isochronous data packet transmissions into **a combined data packet**" which is added to the claim 1 on 12/11/2008. There is insufficient support in the specification for this limitation in the claim.

Claim 2 and 37-38 are rejected because they depend from claim 1.

Independent **Claim 5** recites the newly added limitations "one of reading media data packet of combined data packet transmission", which implies the same limitation of claim 1 "combining data of at least two isochronous data packet transmissions into **a combined data packet**". There is insufficient support in the specification for this limitation in the claim.

Independent **Claim 13** recites the limitation "by combining data of at least two isochronous data packet transmissions into **a combined data packet**". There is insufficient support in the specification for this limitation in the claim.

For examination on the merits, the claims will be interpreted as the best understood.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claim 1-2, 13-15, 22-23, 28-30, 32, 34** and **36-38** are rejected under 35 U.S.C.

103(a) as being unpatentable over Chan et al. (US 20020052990 A1, hereinafter Chan)

in view of Kim et al (US Patent Number 6,151,334, hereinafter Kim), further in view of

Uehara et al. (US 5,754,798, hereinafter Uehara).

For **Claim 1,** Chan discloses a method comprising:

obtaining a total memory bandwidth available for a time period (CPU 120 running

the operating system such as Windows operating system on "Portable computers",

[0005] and [0006], which has total control over the memory and is able to obtain a total

or part of memory bandwidth any time);

obtaining a plurality of bandwidth requests for the time period for a plurality of

isochronous devices ("read-write mass storage drive 114" which can be "hard drives,

floppy drives, optical drives and the like", [0037] and CD-ROM drive 138 of FIG. 1; they

are isochronous devices because video/audio data to/from them are isochronous);

apportioning at least a portion of the total memory bandwidth amongst the

plurality of bandwidth requests (CPU 120 by running the Operating system has total

control over bandwidth allocation as shown in FIG. 1, it manages bandwidth requests

from different devices, such as drive 114 and 138) according to a power managed

profile ("Power management Routines (PMRs)", [0041], where RMRs are power

managed profiles; and "Under appropriate operating conditions, the PMRs may place

the computer 100 into one of the several power management operating modes", [0041])

and a plurality of data rate requirements (data requirements for audio applications as

suggested by "third party audio application can play back standard audio CDs on a

portable computer", [0006]) associated with the plurality of isochronous devices (data

requests associated with drives such as 114 and 138, FIG. 1, which are isochronous

devices when audio applications are running on them); wherein the power managed

profile causes the bandwidth to be apportioned amongst the requests (CPU 120 by

running the Operating system has total control over bandwidth allocation as shown in

FIG. 1, it manages bandwidth requests from different devices, such as drive 114 and

138);

wherein apportioning includes dividing the total memory bandwidth into a plurality

of portions of the total memory bandwidth (as shown in FIG. 1, total bandwidth is

divided into a plurality of portions for different devices, such as drive 114 and 138) and

satisfying at least two of the plurality of bandwidth requests (such as two requests

associated with drive 114 and 138) each with at least one of the plurality of portions of

the total memory bandwidth (CPU 120 by running the Operating system apportioning

memory bandwidth into a plurality of portions to meet the requests associated with

drives, such as drives 114 and 138 to ensure data arrive on desired destinations as

shown in FIG. 1 in view of [0037]), wherein obtaining a plurality of bandwidth requests

for isochronous applications corresponding to the isochronous devices (bandwidth

requests for "third party audio application" on isochronous devices 114 and 138

obtained by CPU 120, as shown in FIG. 1); and

storing the data packet in a memory (the data packet needs to be stored in a

memory either RAM 120 or storage devices like 114 and 138 before it is sent out, as

shown in FIG. 1).

Chan does not explicitly disclose combining multiple data streams into a

combined stream and using polling and asynchronous interrupt driven techniques to

access isochronous devices based the power managed profile.

In the same field of endeavor, Kim teaches combining multiple data streams into

a combined stream ("**combining** the encoded **data streams** with isochronous control

codes for encoding timing information of time critical control signals, and other control

codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly

teaches the combination of multiple isochronous data streams into one (an isochronous

data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream,

such as video, from 138 of FIG. 1 are combined into one data stream in data bus 116 of

FIG. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to use Kim to modify Chan to combine multiple isochronous

data stream into one data stream due to benefit of more functionalities and features to

the system.

Chan in view of Kim is silent on using polling and asynchronous interrupt driven

techniques to access isochronous devices based the power managed profile.

Uehara discloses using polling and asynchronous interrupt driven techniques to access isochronous devices based the power managed profile ("means for supplying an **interrupt** signal to the CPU … means for setting an operation mode of the power supply controller to one of a **polling mode and an event mode** in accordance with a mode setting request from the CPU or a result of detection of a predetermined power supply status, means for setting a power supply status concerning power control of the computer system in the register in response to a status read request supplied via the register from the CPU in polling mode, and means for monitoring various power supply statuses concerning **power management** of the computer system and setting data indicating any power supply status, whose change is detected, in the register upon detection of the change in event mode", col. 7, line 2-28). Polling and Interrupt driven are commonly used techniques by the computer Operating System.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Chan in view of Kim with Uehara to use the polling and interrupt driven techniques in order to save power assumption.

For **Claim 13,** Chan discloses a device comprising:

a bandwidth manager (the operating system of "Portable computers", [0005] and [0006], running on CPU 120 of FIG. 1, which has total control over the memory and is able to obtain a total or part of memory bandwidth any time) configured to apportion at least a portion of a total memory bandwidth available for a time period, amongst a plurality of bandwidth requests for the time period for a plurality of isochronous devices ("read-write mass storage drive 114" which can be "hard drives, floppy drives, optical

drives and the like", [0037] and CD-ROM drive 138 of FIG. 1; they are isochronous

devices because video/audio data to/from them are isochronous), according to a power

managed profile ("Power management Routines (PMRs)", [0041], where RMRs are

power managed profiles; and "Under appropriate operating conditions, the PMRs may

place the computer 100 into one of the several power management operating modes",

[0041]) and a plurality of data rate requirements associated with the plurality of

isochronous devices (data requirements for audio applications associated with drives

such as 114 and 138, FIG. 1 as suggested by "third party audio application can play

back standard audio CDs on a portable computer", [0006]); wherein the power managed

profile causes the bandwidth to be apportioned (bandwidth for each device is allocated

according to PMRs [0041]) amongst the requests for asynchronous activity (such as

data generated from key board 112 of FIG. 1) and isochronous data communication

(audio application data associated with drive 114 and 138 of FIG. 1); wherein

apportioning includes dividing the total memory bandwidth into a plurality of portions of

the total memory bandwidth (as shown in FIG. 1, total bandwidth is divided into a

plurality of portions for different devices, such as drive 114 and 138) and satisfying at

least two (such as bandwidth requests associated with drives such as 114 and 138,

keyboard 112 and etc., FIG. 1) of the a plurality of bandwidth requests (bandwidth

requests associated with difference devices, as shown in FIG. 1) each with at least one

of the plurality of portions of the total memory bandwidth (CPU 120 by running the

Operating system has total control over bandwidth allocation as shown in FIG. 1, it

manages bandwidth requests from the different devices), wherein the plurality of

isochronous devices are related to the plurality of isochronous applications run by a processor, and where the data rate requirement are associated with a plurality of time delay compliance limits for the plurality of isochronous devices ("The Windows operating system's media player or third party audio application can play back standard audio CDs on a portable computer", [0006] in view of FIG. 1 shows isochronous applications on hard drive 114 or CD-ROM Drive 138; the audio applications has time delay compliance limits requirements);

Chan does not explicitly disclose combining multiple data streams into a combined stream and using polling and asynchronous interrupt driven techniques to access isochronous devices based the power managed profile.

In the same field of endeavor, Kim teaches combining multiple data streams into a combined stream ("**combining** the encoded **data streams** with isochronous control codes for encoding timing information of time critical control signals, and other control codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly teaches the combination of multiple isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1, are combined into one data stream in data bus 116 of FIG. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use Kim to modify Chan to combine multiple isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

Chan in view of Kim is silent on using polling and asynchronous interrupt driven

techniques to access isochronous devices based the power managed profile.

Uehara discloses using polling and asynchronous interrupt driven techniques to

access isochronous devices based the power managed profile ("means for supplying an

interrupt signal to the CPU ... means for setting an operation mode of the power supply

controller to one of a **polling mode and an event mode** in accordance with a mode

setting request from the CPU or a result of detection of a predetermined power supply

status, means for setting a power supply status concerning power control of the

computer system in the register in response to a status read request supplied via the

register from the CPU in polling mode, and means for monitoring various power supply

statuses concerning **power management** of the computer system and setting data

indicating any power supply status, whose change is detected, in the register upon

detection of the change in event mode", col. 7, line 2-28). Polling and Interrupt driven

are commonly used techniques by the computer Operating System.

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to combine Chan in view of Kim with Uehara to use the polling

and interrupt driven techniques in order to save power assumption.

For **Claim 22**, Chan discloses an article of manufacture (Storage Device 114 of

FIG. 1) comprising:

a machine-readable medium (Storage Device 114 of FIG. 1) having data therein

which when accessed by a processor (CPU 120 of FIG. 1) causes a bandwidth

manager to obtain a total memory bandwidth available for a time period (the operating

system of "Portable computers", [0005] and [0006] running on CPU 120 of FIG. 1, which

has total control over the memory and is able to obtain a total or part of memory

bandwidth any time), obtain a plurality of bandwidth requests for the time period for a

plurality of isochronous devices ("read-write mass storage drive 114" which can be

"hard drives, floppy drives, optical drives and the like", [0037] and CD-ROM drive 138 of

FIG. 1; they are isochronous devices because video/audio data to/from them are

isochronous), and apportion the at least a portion of a total memory bandwidth amongst

the plurality of bandwidth requests (CPU 120 of FIG. 1 or memory controller 122 of FIG.

1, which has total control over the memory, including apportioning memory bandwidth)

according to a power managed profile ("Power management Routines (PMRs)", [0041],

where RMRs are power managed profiles; and "Under appropriate operating conditions,

the PMRs may place the computer 100 into one of the several power management

operating modes", [0041]) and a plurality of data rate requirements (data requirements

for audio applications as suggested by "third party audio application can play back

standard audio CDs on a portable computer", [0006]) associated with the plurality of

isochronous devices (data requests associated with drives such as 114 and 138, FIG.

1); wherein the power managed profile causes the bandwidth to be apportioned

amongst the requests (CPU 120 by running the Operating system has total control over

bandwidth allocation as shown in FIG. 1, it manages bandwidth requests from different

devices, such as drive 114 and 138), wherein obtaining a plurality of bandwidth

requests (CPU 120 of FIG. 1 controls 122 or 124 of FIG. 1 in generating requests)

includes a plurality of isochronous applications corresponding to the plurality of

isochronous devices (e.g., software programs playing various audio and video streams

from IDE devices, lines 11 of [0076], poll the IDE devices).

In the same field of endeavor, Kim teaches combining multiple data streams into

a combined stream ("**combining** the encoded **data streams** with isochronous control

codes for encoding timing information of time critical control signals, and other control

codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly

teaches the combination of multiple isochronous data streams into one (an isochronous

data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream,

such as video, from 138 of FIG. 1, are combined into one data stream in data bus 116

of FIG. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to use Kim to modify Chan to combine multiple isochronous

data stream into one data stream due to benefit of more functionalities and features to

the system.

Chan in view of Kim is silent on using polling and asynchronous interrupt driven

techniques to access isochronous devices based the power managed profile.

Uehara discloses using polling and asynchronous interrupt driven techniques to

access isochronous devices based the power managed profile ("means for supplying an

interrupt signal to the CPU … means for setting an operation mode of the power supply

controller to one of a **polling mode and an event mode** in accordance with a mode

setting request from the CPU or a result of detection of a predetermined power supply

status, means for setting a power supply status concerning power control of the

computer system in the register in response to a status read request supplied via the

register from the CPU in polling mode, and means for monitoring various power supply

statuses concerning **power management** of the computer system and setting data

indicating any power supply status, whose change is detected, in the register upon

detection of the change in event mode", col. 7, line 2-28). Polling and Interrupt driven

are commonly used techniques by the computer Operating System.

For **Claim 28**, Chan discloses a system comprising:

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to combine Chan in view of Kim with Uehara to use the polling

and interrupt driven techniques in order to save power assumption.

For **Claim 28**, Chan discloses a system comprising:

a bandwidth manager to obtain a total memory bandwidth available from a

memory for a time period (the operating system of "Portable computers", [0005] and

[0006] running on CPU 120 of FIG. 1, which has total control over the memory and is

able to obtain a total or part of memory bandwidth any time), obtain a plurality of

bandwidth requests for the time period for a plurality of isochronous devices ("read-write

mass storage drive 114" which can be "hard drives, floppy drives, optical drives and the

like", [0037] and CD-ROM drive 138 of FIG. 1; they are isochronous devices because

video/audio data to/from them are isochronous), and apportion at least a portion of a

total memory bandwidth amongst a plurality of bandwidth requests for the time period

according to a power managed profile ("Power management Routines (PMRs)", [0041],

where RMRs are power managed profiles; and "Under appropriate operating conditions,

the PMRs may place the computer 100 into one of the several power management

operating modes", [0041]), wherein apportioning includes dividing the total memory

bandwidth into at least four portions (see FIG. 1 in view of [0037], the total bandwidth

may be divided to at least 4 portions, streams associated with 128, 118, 116 and 114s)

of the total memory bandwidth to balance between total power available according to

the power managed profile and a plurality of minimum bandwidth requirements of

individual entities generating the plurality of bandwidth requests (CPU 120 by running

the Operating system controls the memory bandwidth following "Power management

Routines (PMRs)", [0041]);

a data transmission manager (the Operating system running on CPU 120 of FIG.

1) to delay transmission of a first isochronous data transmission having media data to

be transmitted to or from a first of the isochronous devices (data streams from drives

such as 114 and 138 merge into a combined data streams in bus 116 as shown in FIG.

1, which may cause delay), according to a data transmission policy ("Power

management Routines (PMRs)", [0041]), a data bus coupled between the memory and

the plurality of isochronous devices (data bus 116 of FIG. 1 in view of [0038] coupled

between the memory 120 and the plurality of isochronous devices 114 and 138),

wherein the data transmission is read from or written to the memory via the data bus

(FIG. 1 shows data transmission is read from or written to the memory via the data bus).

Chan does not explicitly disclose combining multiple data streams into a

combined stream and using polling and asynchronous interrupt driven techniques to

access isochronous devices based the power managed profile.

In the same field of endeavor, Kim teaches combining multiple data streams into a combined stream ("**combining** the encoded **data streams** with isochronous control codes for encoding timing information of time critical control signals, and other control codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly teaches the combination of multiple isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1, are combined into one data stream in data bus 116 of FIG. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use Kim to modify Chan to combine multiple isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

Chan in view of Kim is silent on using polling and asynchronous interrupt driven techniques to access isochronous devices based the power managed profile.

Uehara discloses using polling and asynchronous interrupt driven techniques to access isochronous devices based the power managed profile ("means for supplying an **interrupt** signal to the CPU … means for setting an operation mode of the power supply controller to one of a **polling mode and an event mode** in accordance with a mode setting request from the CPU or a result of detection of a predetermined power supply status, means for setting a power supply status concerning power control of the computer system in the register in response to a status read request supplied via the register from the CPU in polling mode, and means for monitoring various power supply

statuses concerning **power management** of the computer system and setting data indicating any power supply status, whose change is detected, in the register upon detection of the change in event mode", col. 7, line 2-28). Polling and Interrupt driven are commonly used techniques by the computer Operating System.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Chan in view of Kim with Uehara to use the polling and interrupt driven techniques in order to save power assumption.

As to **Claim 2** and **23**, Chan in view of Kim and Uehara discloses claim 1 and 22, Chan further discloses the method comprising:

determining a data transmission policy based on the power managed profile (PMRs, line 4 of [0041]) and the plurality of bandwidth requests (122 or 124 of FIG. 1), the data transmission policy to manage delaying ("may cause a delay", [0080]) transmission of a first isochronous data transmission and to combine data of the first isochronous data packet transmission with data of a second data transmission (as disclosed in claim 1 and 22).

For **Claim 14**, Chan in view of Kim and Uehara discloses the device of claim 13, Chan further discloses the bandwidth manager is coupled to the plurality of isochronous devices to manage data communication between the plurality of isochronous devices and a memory (RAM, 120 of FIG. 1, is coupled with the plurality of isochronous devices such as Storage drives 114 and CD-ROM drive 138).

As to **Claim 15**, Chan and Kim and Uehara disclose the device of claim 14, Chan further discloses a duration of the time period depends on a status of a processor (CPU

& RAM 120 of FIG. 1, where CPU running the Operating system manages control

devices 122 and 124).

As to **Claim 29**, Chan in view of Kim and Uehara discloses the system of claim

28; Chan further discloses the data transmission policy further comprising: identifies a

plurality of transmission time periods (suggested by "the CPU must periodically monitor

peripheral devices", [0021]) during which to transmit a plurality of combined isochronous

data transmissions (the audio applications running on device 114 and 138, as explained

in claim 28), and selects a time to transmit the combined data transmission between

one of a transmission time of an asynchronous data transmission (data from keyboard

122), a third isochronous data transmission (another audio application on another

device of 114 since it may have multiple devices as disclosed in [0037]), and a

transmission time of one of the plurality of combined isochronous data transmissions

(CPU 120 by running the Operating system selects a time to transmit the data).

As to **Claim 30**, Chan in view of Kim and Uehara discloses the system of claim

29, Chan further discloses transmitting an opportunistic data (such as the data from

keyboard 112, FIG. 1) transmission prior to expiration of a transmission time period, the

opportunistic data transmission having media data from at least two isochronous data

(CPU 120 by running the Operating system has total control of transmission as shown

in FIG. 1, it can control the transmission according to user requirements, including the

case of transmission prior to expiration of a transmission time period).

As to **Claim 32**, Chan in view of Kim and Uehara discloses the method of claim

1, Chan further discloses the power managed profile is based on power usage policy

("Power management Routines (PMRs)", [0041]) related to a processor, RAM memory
(CPU & RAM 120 of FIG. 1), hard drive (Storage device 114 of FIG. 1), processor logic,
memory controller (122 of FIG. 1), chipset logic and data bus use (124 of FIG. 1) (Note
that .

As to **claim 34**, Chan in view of Kim and Uehara discloses claim 2, Chan further
discloses the data transmission policy (policy implemented by controller 124 of FIG. 1)
to manage delaying transmission of a third and a fourth isochronous data packet
transmission (two more audio applications on devices of 114 since it may have multiple
devices as disclosed in [0037]), and to manage combining data of the third and fourth
isochronous data packet transmissions with data of an asynchronous data packet
transmission (asynchronous and isochronous data packet transmissions are all merged
via controller 124 to system bus 116 as shown in FIG. 1, where asynchronous data
transmissions are delay to ensure isochronous packet data transmissions to be
delivered in synchronization; notice that data are most commonly transmitted in packets
in a digital system) into the combined data packet for transmission (as disclosed in the
parent claim 1 and 2).

As to **Claim 36,** Chan in view of Kim and Uehara discloses claim 23, further
discloses the method comprising: data to cause bandwidth manager to delay ("may
cause a delay", [0080]) transmission of a third and of a fourth isochronous data
transmission (two more audio applications on devices of 114 since it may have multiple
devices as disclosed in [0037]), and combine data of the third and fourth isochronous

data transmissions with an asynchronous data packet transmission into the combined

data transmission (by Kim and Chan, as explained in parent claim above).

As to **Claim 37**, Chan in view of Kim and Uehara disclose the method of claim 1,

Chan further discloses the portioning includes dividing the total memory bandwidth into

at least four portions of the total memory bandwidth to balance between total power

available according to the power managed profile and a plurality of minimum bandwidth

requirements of individual entities generating the plurality of bandwidth requests (FIG. 1

shows portioning the total memory bandwidth into multiple portions with each portion for

a specific drives, such as drives associated with Storage device 114 that may include

multiple drives [0037], or IDE bus 128 [0039], which may have at least 4 drive (most PC

IDE interface support 4 devices; CPU 120 by running the Operating system does the

portioning to balance between total power available according to the power managed

profile and a plurality of minimum bandwidth requirements of individual entities).

As to **Claim 38**, Chan in view of Kim and Uehara disclose claim 37, further

comprising: after storing (as disclosed in the parent claim above in claim 1), powering-

up components required to transmit the combined data packet (system components

always need to power up in order to transmit data packets, as shown in the system

shown in FIG. 1); then transmitting the stored combined data packet (data are

transmitted as shown in FIG. 1, such as on data bus between device 114 and CPU

120).

7.   **Claims 5, 8-9, 11-12, 17, 20-21, 25, 27** and **35** are rejected under 35 U.S.C.

103(a) as being unpatentable over Chan in view of Kim.

For **Claim 5**, Chan discloses a method comprising:

delaying transmission (suggested by "cause a delay", [0080]; CPU 120 running

Operating system has total controls data traffic of the system it will delay a data

transmission if needed) of a first isochronous data transmission having media data to be

transmitted to or from a first isochronous device (an audio data stream from one of

devices associate with storage device 114 of FIG. 1 in view of [0037]);

appending the first isochronous data transmission with a second isochronous

data transmission (an audio data stream from CD-ROM drive 138, merging/appending

with the data stream from device 114 into CPU 120 as shown in FIG. 1), wherein

appending is performed according to a data transmission policy (CPU 120 follows

"Power management Routines (PMRs) … Under appropriate operating conditions, the

PMRs may place the computer 100 into one of the several power management

operating modes", [0041], including controlling data packet transmission, as data

transmission policy in view of [0041]), selecting a time to transmit the combined data

transmission (CPU 120 by running the Operating system selects a time to transmit the

data), wherein selecting includes selecting between a transmission time of an

opportunistic data transmission (such as data from keyboard 112 of FIG. 1) and a

transmission time (the operating system of "Portable computers", [0005] and [0006]

running on CPU 120 of FIG. 1, which has total control over the memory and is able to

transmit the specific data at a selected time) of a isochronous data transmission ("third

party audio application can play back standard audio CDs on a portable computer",

[0006] running at device such as CD-ROM 138);

using the transmission policy ("Power Management Routines (PMRs)", [0041],

which defines power management policies) to identify a plurality of transmission time

periods during which to transmit a plurality of isochronous data packet transmissions

(multiple audio applications running at multiples devices such as devices associated

with 114 and 138 of FIG. 1 with isochronous data streams being transmitted specified

periods of time controlled by CPU 120, as shown in FIG. 1); and

using the transmission policy to select a time to transmit the combined data

transmission (the operating system of "Portable computers", [0005] and [0006] running

on CPU 120 of FIG. 1, which has total control over the memory and is able to transmit

the specific data at a selected time), wherein selecting includes selecting between a

transmission time of an opportunistic data transmission and a transmission time of a

combined isochronous data transmission (FIG. 1, where both opportunistic data [such

as data from the keyboard 112] and the isochronous data above need to be sent,

therefore selecting a time to transmit what type of data is made); performed according

to a data packet transmission policy ("Power management Routines (PMRs)", [0041],

where RMRs are power managed profiles; and "Under appropriate operating conditions,

the PMRs may place the computer 100 into one of the several power management

operating modes", [0041], including controlling data packet transmission);

storing the data packet in a memory (a data packet needs to be stored in a

memory either RAM 120 or storage devices like 114 and 138 before it is sent out, as

shown in FIG. 1).

Chan does not explicitly disclose combining the multiple isochronous data transmissions into a combined isochronous data transmission.

In the same field of endeavor, Kim teaches combining multiple data streams into a combined stream ("**combining** the encoded **data streams** with isochronous control codes for encoding timing information of time critical control signals, and other control codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly teaches the combination of multiple isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1, are combined into one data stream in data bus 116 of FIG. 1);

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use Kim to modify Chan to combine multiple isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

For **Claim 17** and **25**, Chan discloses a device (CPU 120 by running the Operating system controls the whole system, [0005]) and an article of manufacture, comprising:

a data transmission manager configured to delay transmission of a first isochronous data transmission having media data to be transmitted to or from a first isochronous device (such as "third party audio application", [0006], on device 114 of FIG. 1), and to append the first isochronous data transmission with a second isochronous data transmission (such as "third party audio application", [0006], on device

138 of FIG. 1) having media data to be transmitted to or from the first isochronous

device (FIG. 1 shows data streams from devices merge to CPU 120), wherein

appending is performed according to a data transmission policy ("Power management

Routines (PMRs)", [0041], where RMRs are power managed profiles which impact data

transmission); and

selecting a time to transmit the combined data transmission (has total control

over the memory and is able to obtain a total or part of memory bandwidth any time),

wherein selecting includes selecting between a transmission time of an opportunistic

data transmission (such as data from the keyboard 112 of FIG. 1) and a transmission

time of a combined isochronous data transmission (transmission time of a video/audio

data stream from device 114 or 138, such as "third party audio application", [0006]),

wherein the data transmission policy identifies a plurality of transmission time periods

during which to transmit a plurality of combined isochronous data transmissions ("play

back standard audio CDs", [0006], audio data are isochronous), and selects a time

("have several power down modes", [0007]) to transmit the combined data transmission

between one of a transmission time of an asynchronous data transmission ("have

several power down modes", [0007], which decides the transmission time), a third

isochronous data transmission (e.g., another audio application), and a transmission time

of one of the plurality of data transmissions wherein the third isochronous data

transmission is to be transmitted to or from a second isochronous device (CD-ROM 138

of FIG. 1).

Chan does not explicitly disclose combine multiple isochronous data stream into one data stream.

In the same field of endeavor, Kim teaches combining multiple data streams into a combined stream ("**combining** the encoded **data streams** with isochronous control codes for encoding timing information of time critical control signals, and other control codes **into a data transfer stream**", claim 1, 2nd paragraph). In fact, Chan implicitly teaches the combination of multiple isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1, are combined into one data stream in data bus 116 of FIG. 1); Chan also teaches using power managed profile ("Power management Routines (PMRs)", [0041], and control the delay [0080].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use Kim to modify Chan to combine multiple isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

As to **Claim 8**, Chan in view of Kim discloses the method of claim 5, Chan further discloses the opportunistic data transmission comprising one of an asynchronous data transmission (such as data from keyboard 112 of FIG. 1) and a third isochronous data packet transmission (such as another audio application on CD-ROM drive 138, FIG. 1).

As to **Claim 9**, Chan and NA in combination disclose the method of claim 5, Chan further discloses the method comprising: the data packet transmission policy reduces a first frequency of transmission times related to transmitting the first

isochronous data packet transmission to a less frequent second frequency of

transmission times related to transmitting the combined data packet transmission (the

frequency of transmitting the first isochronous data may be reduced within the boundary

of time requirement for the isochronous data by definition of isochronous data packet

transmission, as suggested by FIG. 1 since they share the same bus).

As to **Claim 11**, Chan and NA in combination disclose the method of claim 5,

Chan further discloses delaying ("cause a delay", [0080]) transmission of the second

isochronous data packet transmission (CPU 120 by running the Operating system has

full control of data transmission of the system, it may cause a delay on any data stream,

including the second isochronous data packet transmission).

As to **Claim 12**, Chan in view of Kim disclose the method of claim 5;

Chan further disclose the method comprising: transmitting the combined data

packet transmission prior to expiration of a time delay compliance limit (suggested by

"cause a delay", [0080]; and CPU 120 has total control of the system and decides the

time it desired to transmit a data packet).

As to **Claim 20**, Chan in view of Kim discloses the device of claim 17, further

comprising: one of a processor (CPU 120 of FIG. 1) and a (data bus 116 of FIG. 1)

coupled to a memory (RAM 120 of FIG. 1), wherein the combined data transmission is

read from or written to the memory via the processor or the data bus (FIG. 1 shows data

transmission is read from or written to the memory via the CPU 120 or the data bus

116).

As to **Claim 21**, Chan in view of Kim discloses the device of claim 17, wherein the media data of the first and second isochronous data transmission include one of digital audio data and digital video data ("third party audio application can play back standard audio CDs on a portable computer", [0006]).

As to **Claim 27**, Chan in view of Kim discloses the method of claim 25, Chan further discloses data to cause the data transmission manager to transmit an opportunistic data transmission (such as data from keyboard 112 of FIG. 1) prior to expiration of a transmission time period (CPU 120 has total control of transmission time as shown in FIG. 1 in view of the combination of ("cause a delay", [0080] and "Power Management Routines (PMRs)", [0041]) the opportunistic data transmission having media data from at least two isochronous data packet transmissions (such as a "third party audio application", [0006] , from storage device 114 and another from CD-ROM drive 138, FIG. 1).

As to **Claim 35**, Chan in view of Kim discloses claim 5 wherein appending further comprises: appending an asynchronous data packet transmission (such as data from keyboard 112 of FIG. 1) with the first and second isochronous data packet transmissions (such as "third party audio application", [0006] from CD-ROM drive 138) to form the combined data packet transmission into the combined data packet for transmission (the combing multiple data transmissions into one is explained in parent claim in claim 5 above).

8. **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan in view of Kim and Uehara, further in view of Hsu (US 6,288,896 B1, hereinafter **Hsu**).

As to **Claim 31**, Chan in view of Kim and Uehara disclose the method of claim 1,

but are silent on the power managed profile is based on maximizing the life of a battery

of a computer.

In the same field of endeavor, Hsu teaches maximizing the life of a battery of a

computer (col. 1, line 28-30, "battery-powered computers, where maximum battery life is

desirable").

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify Chan in view of Kim and Uehara's teaching to setup

power managed profile based on maximizing the life of a battery of a computer as

taught by Hsu in order to requirements of users.

9.   **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan in

view of Kim and Uehara, further in view of Wu et al. (US 20030206520 A1, hereinafter

Wu)

As to **Claim 33**, Chan in view of Kim and Uehara disclose the method of claim 1,

Chan does not explicitly discloses the power managed profile apportions the bandwidth

based on a balance between a total power available and a minimum bandwidth

requirement of individual entities submitting the requests and including the isochronous

devices.

Wu teaches balancing between power and bandwidth requirement ("optimal and

flexible balance between radio bandwidth, terminal storage and power usage", [0047]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify Chan in view of Kim and Uehara's teaching to setup

power managed profile based on optimal and flexible balance between radio bandwidth and power as taught by Wu in order to requirements of users.

Response to Amendments/Remarks

10.   Applicant's arguments and all other documents filed on 7/10/2009 have been fully considered but they are moot because all independent claims have been amended, to which new ground rejections are made as shown in this Office Action.

11.   Regarding to Applicant's arguments on claims 1-3, 5, 9-12 and 37 rejected under 35 USC 101 (Section I of page 10), the claim amendments do not fix the problem that the claims "neither transform underlying subject matter nor recite structure associated with another statutory category, and therefore do not define a statutory process" as pointed out in the previous Office Action.

12.   Regarding to Applicant's arguments on claims **1-2** and **37-38** rejected under 35 USC 112, first paragraph (Section II, page 10-11), Applicant argues: "The Patent Office rejects claims 1-3 and 37 because "by combining data of at least two isochronous data packet transmissions into a combined data packet" is allegedly not supported in the specification. Applicants respectfully disagree as upon reading at least Figures 5, 7-9 and paragraphs 15, 49, 43, 47 and 51 of the application, a practitioner in the art would find the above- noted limitation clearly supported" (1st paragraph of Section II, page 10);

In response, Examiner respectfully disagrees: the cited FIG. 5, 7-9 and paragraphs only teaches combining data of at least two isochronous data packet transmissions into a **combined data transmission** (such as 290 of FIG. 5), not into a **combined data packet**. Therefore, Applicant's argument is not persuasive.

13.   Regarding to Applicant's arguments on claims rejected under 35 USC 103(a)

(Section III, page 11-23), Applicant arguments are considered, but not persuasive.

In general, the inventive concept of this application appears to be on bus

bandwidth allocation for different types of traffic under different conditions and

constrains. However, the limitations presented in the application are within the scope of

well known control techniques in modern real-time computer operating system, which

controls the overall operation of a computer system, including a variety of computer bus

bandwidth allocation techniques to meet the requirements of mode real-time

applications, such as playing audio and video on DVD drives associated with the

computer system.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jianye Wu whose telephone number is (571)270-1665.

The examiner can normally be reached on Monday to Thursday, 8am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jianye Wu/
Examiner, Art Unit 2462